



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

1731

PATENT  
SP01-212

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**Applicant(s):** Dawes et al.

**Serial No.:** 09/918,088

**Filing Date:** 7/30/01

**Title:** SINGLE STEP LAYDOWN  
METHOD OF MAKING DRY FIBER  
WITH COMPLEX FLUORINE  
DOPED PROFILE

**PRELIMINARY AMENDMENT**

Group Art Unit: 1731

Examiner: TBA

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Assistant Commissioner for Patents  
Washington, DC 20231

Sir:

Applicants hereby submit the proposed Preliminary Amendment for consideration and entry into the above-referenced application.

**IN THE SPECIFICATION**

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Please replace the paragraph beginning at page 4, line 28 as follows:

Preferably, the soot 12 being deposited onto starting member 16 is a silica based soot. More preferably, preform 10 may have one or more regions of doped silica soot. Dopants utilized within the regions of preform 10 include, but are not limited to, Ge, P, Al, B, Ga, In, Sb, Er, Li, Na, K, Rb, Cs, Be, Mg, Ca, Sr, Ba, Ti, Se, Te, Fr, Ra, Bi, or combination thereof. Preform 10 may also have one or more regions of undoped silica soot. In the present example, it is most preferred that an outer region of preform 10 comprises undoped silica soot. In one preferred embodiment, preform 10 includes a first region or portion 20, a second region or radial portion 22 surrounding first region 20, and a third region or radial portion 24 surrounding second region 22. The refractive index profile of an optical waveguide fiber constructed from preform 10 is shown in Fig. 2. In the present example, preform 10 is formed by depositing first region 20 of silica soot doped with a refractive index decreasing dopant, such as germanium (e.g., having a  $\Delta_1$ ), depositing second region 22 of silica soot doped with a refractive index increasing dopant such as fluorine (e.g., having a  $\Delta_2$ ), and depositing third region 24 of pure silica soot (e.g., having a  $\Delta_3$ ). The refractive index profile of the present example generally follows the relationship of  $\Delta_1 > \Delta_3 > \Delta_2$ , however, other profiles may be constructed utilizing the concepts disclosed herein.